

Description of *Calliotropis pulvinaris* new species (Gastropoda: Trochidae: Eucyclinae: Calliotropini) from West Madagascar

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ABSTRACT

Calliotropis pulvinaris new species is described from West Madagascar and compared with similar species in the trochid subfamily Eucyclinae, particularly with *C. patula* (Martens, 1904), *C. concavospira* (Schepman, 1908), *C. blacki* Marshall, 1979, and *C. vaillanti* (Fischer, 1882). The new species can be separated from these by a rather depressed spire, a rounded periphery, tumid whorls bearing four spiral cords of which nodules decrease in size and increase in number from adapical cord to abapical cord, and five spiral cords on the base.

INTRODUCTION

The malacofauna of this area remains poorly known, despite earlier surveys (1971–1973) by ORSTOM (Office de la Recherche Scientifique et Technique Outre-Mer, now IRD: Institut de Recherche pour le Développement) on the continental slope of Madagascar (Crosnier and Jouannic, 1973). Independently of the inherent economic interest, this endeavor yielded abundant zoological material, more particularly mollusks now deposited at the MNHN (Muséum national d'Histoire naturelle, Paris).

Commercial fishing boats have trawled for deep-water shrimp off Madagascar. The commercial dredging off West Madagascar from these last years brought various specimens of trochid species, some of them described in the past (Watson, 1886; Martens and Thiele, 1904; Thiele, 1925; Barnard, 1963), others recently named as new species (Vilvens, 2001 and 2002). Two years ago, Guido T. Poppe entrusted me with trochid shells collected in deep water. These shells, originally labeled as *Calliotropis patula* (Martens, 1904), are conspecific with material trawled by French expeditions and deposited at MNHN in the 1970s. Closer examination and comparison with the type of the supposed species leads me to conclude that all these shells belong to an unnamed species that is described here as new.

Text abbreviations used are: IRSNB: Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium; MNHN: Muséum national d'Histoire naturelle, Paris;

France; NMNZ: Museum of New Zealand Te Papa Tongarewa, Wellington, New Zealand; ZMA: Zoölogisch Museum, Amsterdam, The Netherlands; ZMB: Zoologisches Museum of Berlin, Germany; P1, P2, P3, P4: primary cords (P1 is the most adapical); stn: station; dd: no live specimens present in sample.

I follow below the classification of Hickman and McLean (Hickman and McLean, 1990) at the suprageneric level.

SYSTEMATICS

Family Trochidae Rafinesque, 1815

Subfamily Eucyclinae Koken, 1897

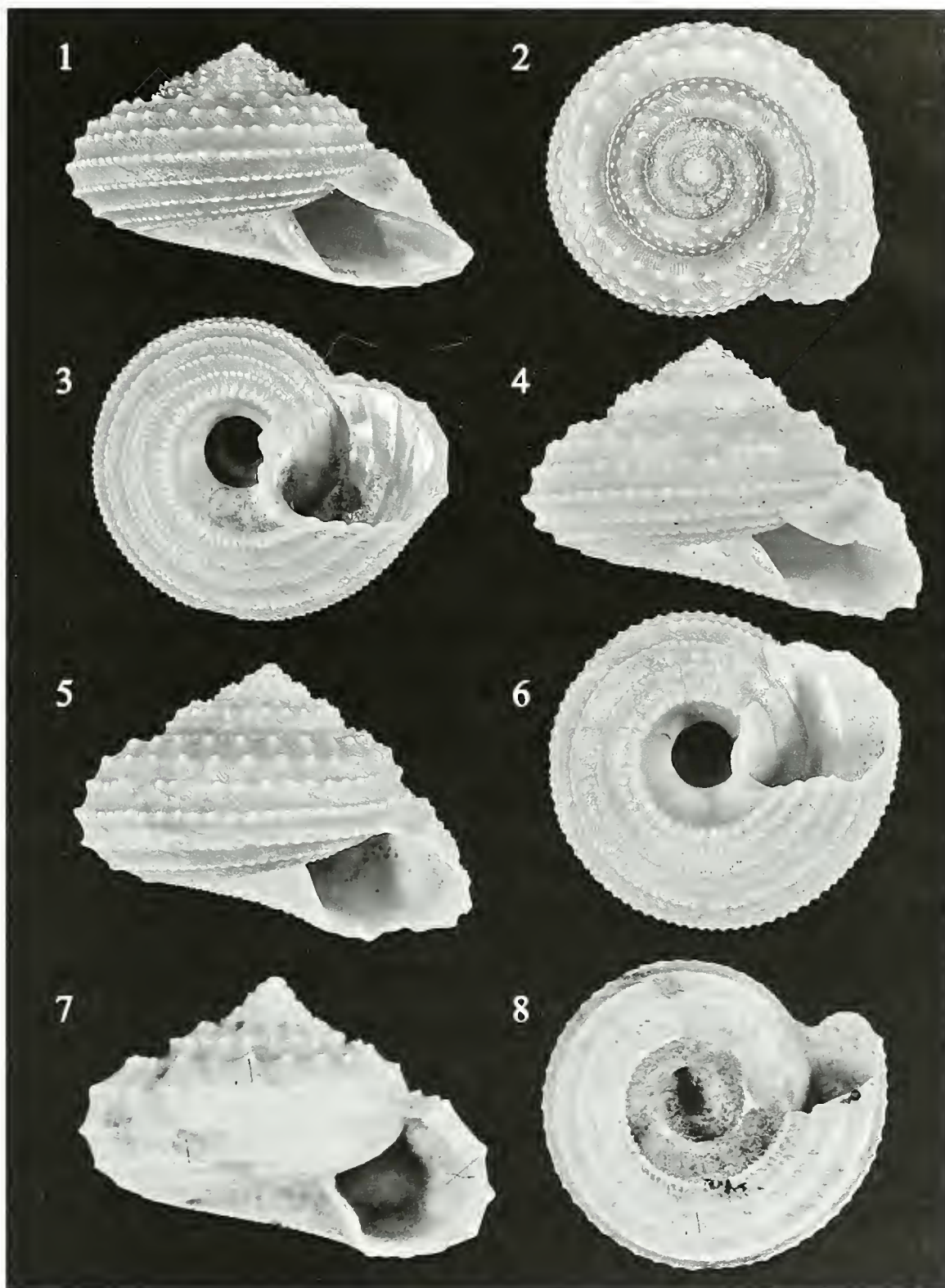
Tribe Calliotropini Hickman and McLean, 1990

Genus *Calliotropis* Seguenza, 1903

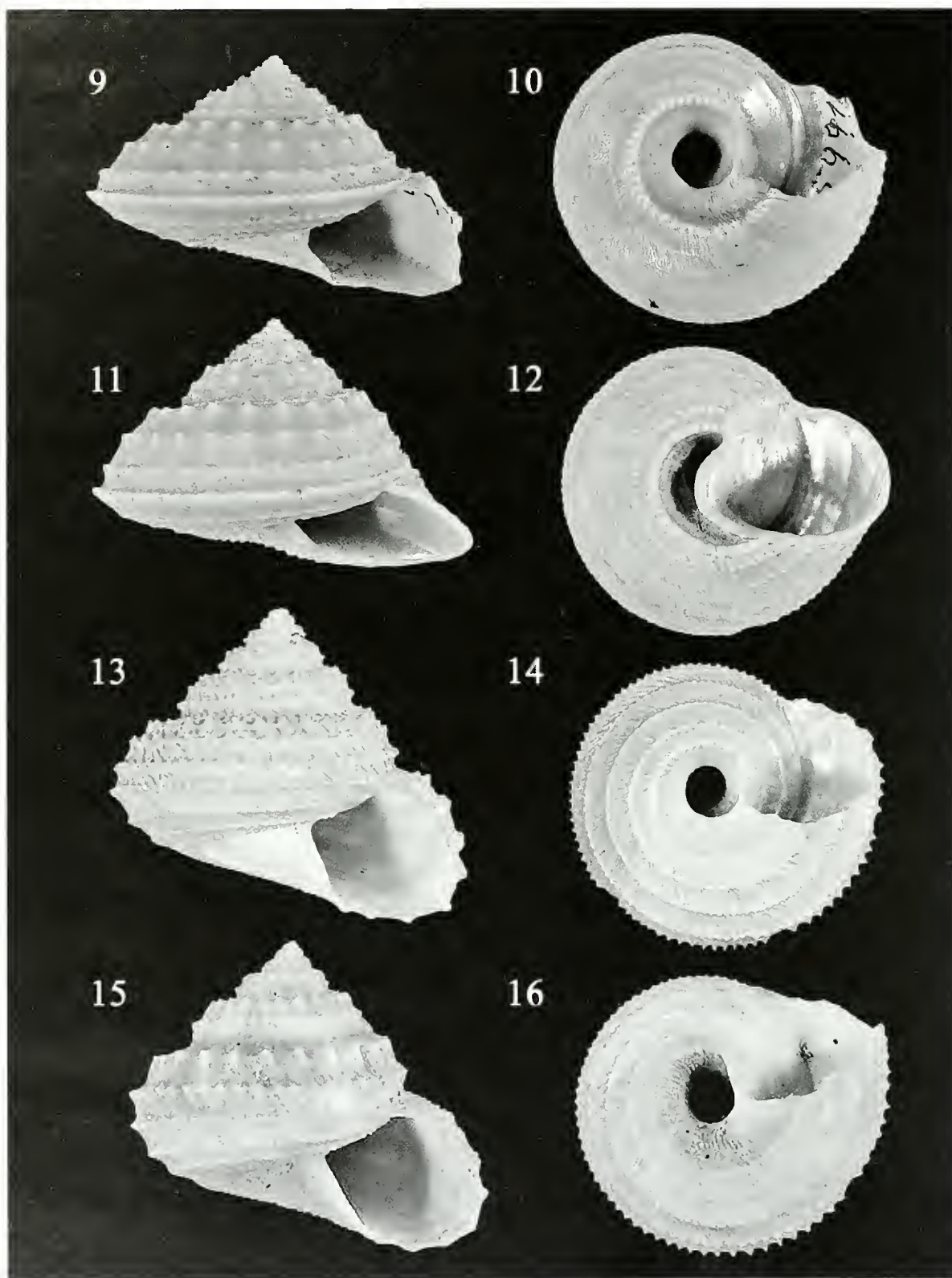
Type Species: *Trochus otto* Philippi, 1844, Pliocene–Pleistocene, Italy; by original designation.

Calliotropis pulvinaris new species
(Figures 1–6)

Description: Shell rather long for genus (height up to 18.3 mm, width up to 29.0 mm), rather depressed, rather thin, cyrtconoidal; spire rather low, height 0.6–0.7×width, height 2.3–4.5×aperture height; umbilicus deep and large. Protoconch about 300 µm wide, with about 1 whorl, partially damaged on available specimens, remaining part smooth. Teleoconch of up to seven convex whorls, bearing four spiral granular cords and prosocline threads; nodules from cords produced by intersections with axial folds on four first whorls; additional axial threads not connecting nodules on last whorls. Suture visible, impressed, not canaliculated. First teleoconch whorl convex, sculptured by about 18–20 prosocline smooth riblets, interspace between riblets twice as wide as riblets; primary spiral cords P2 and P3 appearing almost immediately, evenly spaced, similar in size and shape, bearing rounded nodules produced by intersection with axial riblets. On second whorl, P2 and P3 stronger, P1 appearing at end of whorl, close to P2. On third whorl, nodules of P1 and P2 becoming sharp, with weak-



Figures 1–8. *Calliotropis* species. 1–6. *Calliotropis pulvinaris* new species. 1–3. Holotype MNHN, northwestern Madagascar, 15.1×29.0 mm. 4. Paratype IRSNB, West Madagascar, 18.1×26.6 mm. 5–6. Paratype, collection C. Vilvens, West Madagascar, 15.3×25.4 mm. 7–8. *C. concatospira* (Schepman, 1908), syntype ZMA, Indonesia, 6.0×5.7 mm.



Figures 9–16. *Calliotropis* species. 9–12. *Calliotropis patula* (Martens, 1904). 9–10. Syntype ZMB 55919, between Zanzibar and Brawa, 16.2×25.1 mm. 11–12. Syntype ZMB 109933, Somaly, 19.0×27.2 mm. 13–14. *C. blacki* Marshall, 1979, holotype NMNZ M226932, Raoul Island, Kermadec group, 11.3×13.0 mm. 15–16. *C. vaillanti* (Fischer, 1882), MNHN, Azores Islands, 10.6×12.2 mm.

Table 1. *Calliotropis pulvinaris*. Shells measurements in mm for all types cited and type material (n=8). H: height; W: width; HA: aperture height; TW: number of teleoconch whorls.

	Measurement					
	TW	H	W	HA	H/W	H/HA
Range	5.75–7.00	15.4–18.3	21.8–29.0	4.00–6.90	0.60–0.70	2.30–4.50
Mean	6.69	17.11	24.7	5.71	0.69	3.10
Standard deviation	0.41	0.97	2.13	0.93	0.03	0.70

ly adapically oriented tip; P4 partially covered by succeeding whorl, with nodules smaller and more numerous than ones on other cords. From fourth whorl on nodules on cords decrease in size and sharpness, and increase in number from P1 to P4; cords evenly distributed on whorl; axial threads in area between cords remain thin, distance between threads similar to threads width. On last whorl, P4 peripheral; no secondary spiral cords; periphery rounded.

Aperture almost circular, forming angle at junction of inner and outer lips; this angle almost rounded and outer lip slightly flared in fully mature specimens; inner lip flanged in a curved arc projecting weakly over umbilicus; parietal lip forming thin, transparent glaze. Columella slightly curved, without tooth, abapical part prosocline. Base moderately convex, with 5 granular spiral cords, innermost one stronger than others and bordering umbilicus; interspace between cords twice as wide as cords, smaller for two innermost cords on young adult specimens; very fine axial lamellate threads between cords, poorly visible. Umbilicus wide, funnel shaped, diameter about 35% of shell diameter, with very fine crowded axial lamellae and no spiral cord within. Color of protoconch and teleoconch pinkish white, with no maculations; first two whorls somewhat brownish.

Type Locality: West Madagascar, 22°17.0' S, 43°02.2' E, 640–660 m, Indian Ocean.

Type Material: Holotype MNHN unnumbered (dd), Chalutages *Vauban*, stn. CH 112, coll. A. Crosnier, from type locality, 18.1×29.0 mm; Paratype 1 MNHN unnumbered (dd), 12°50'S, 48°09'E, 580–585 m, north-western Madagascar, coll. A. Crosnier; Paratypes 2 MNHN (dd), 1 IRSNB (IGnr 30 185) (dd), 1 ZMB (Moll. 108.519) (dd), 1 G. T. Poppe collection (dd), 1 C. Vilvens collection (dd), all from West Madagascar, off Mahajanga (formerly Majunga), commercial trawlers said to be from 800 m.

Etymology: Of a cushion (Latin); with reference to the soft and oval form of the shell, without angulations.

Remarks: *Calliotropis pulvinaris* new species is similar to *C. patula* (Martens, 1904) (Figures 9–12) from East Africa (off Somalia and Zanzibar, 977–1019 m), but this species differs from the new species by having a subangulated periphery, less tumid whorls, four spiral cords on base (instead of 5) and also by the nodules of P1 and P2 that become bigger than those of P3 much later (4th whorl).

The new species weakly resembles *C. concavospira* (Schepman, 1908) (Figures 7–8) from Indonesia (also deep water from 835 to 883 m), but this smaller species has only three cords on the whorls and these whorls are more angulated.

Calliotropis pulvinaris new species may also be compared to *C. blacki* Marshall, 1979 (Figures 13–14), from Kermadec Islands, but this Indo-Pacific species is smaller for a similar number of whorls, has a more elevated spire and only four spiral cords on the base.

The new species is also superficially similar to *C. vailanti* (Fischer, 1882) (Figures 15–16) and *C. ambigua* (Dautzenberg and Fischer, 1896), both from eastern Atlantic, and to *C. actinophora* (Dall, 1890) from western Atlantic, but these three species have a more elevated spire, only 3 spiral cords on the whorls and only four spiral cords on the base.

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Notice

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The Curatorship, established originally in accordance with the wishes of the late Dr. R. Tucker Abbott, Founding Director of the Shell Museum, is awarded annually to enable malacologists to visit the museum for a period of one week. Abbott Fellows will be expected, by performing collection-based research, to assist with the curation of portions of the Museum's collection and to provide one evening talk for the general public. The Museum collection consists of marine, freshwater, and terrestrial specimens. A large percentage of our holdings have been catalogued through a computerized database management system. A substantial portion of the time will be available for research in the collection, but field work in southwest Florida can be arranged. The R. T. Abbott Visiting Curatorship is accompanied by a stipend of \$1,500.

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Dr. José H. Leal, Director
The Bailey-Matthews Shell Museum
P.O. Box 1580
Sanibel, FL 33957
jleal@shellmuseum.org

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